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April 15, 2002

**ORIGINAL**

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

ND

F. Caton  
Secretary  
Communications Commission  
The Secretary  
Street, SW  
Washington, DC 20054

Re: **Ex Parte** - Consolidated Application of EchoStar Communications Corporation, Hughes Electronics Corporation, and General Motors Corporation for Authority to Transfer of Control (CS Docket No. 01-348)

Hughes Electronics Corporation ("Hughes") and General Motors Corporation hereby submit documents in response to the Commission's February 4, 2002 Initial Order and Document Request (the "Request"). The documents are being provided in response to the Request, as clarified in our February 21, 2002 procedural meeting, in the manner set forth in our letter dated February 28, 2002 and in the joint letter from EchoStar Communications Corporation ("EchoStar"), Hughes and GM dated March 5, 2002. The material responsive to the Request is being provided by person and organized by responsive number. We are continuing to review the collected documents from the sources submitted to the Commission and will produce responsive documents on a rolling basis as possible.

This production includes some documents that are public and some that are confidential. Two copies of the public documents are provided herewith. One copy of the confidential documents is being submitted with the version of this cover letter marked "Not for Public Inspection" and is being filed under seal with the FCC Office and should not be placed in the public record in this proceeding. Two copies of the confidential and confidential documents are also being delivered to Marcia Glauber and the FCC. The confidential documents submitted by GM and Hughes are marked

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St. Louis, Missouri

January 7, 2002

CONFIDENTIAL INFORMATION – SUBJECT TO PROTECTIVE ORDER IN CS DOCKET 02-8 and “Copying Prohibited” in accordance with the Protective Order adopted in this proceeding on January 7, 2002. Because almost all of the documents submitted are confidential in nature, we are not submitting redacted copies of the documents. Attached as Exhibit A are the confidential documents by Bates number. Further, we are not producing privileged documents (e.g., subject to attorney-client privilege).

Hughes and GM have exercised good faith in the review of documents to date in responsiveness to the Commission’s request and will continue to do so. Should there be any questions regarding this matter, please contact the undersigned.

Respectfully submitted,



Alex Hoehn-Saric

*Counsel for General Motors Corporation  
and Hughes Electronics Corporation*

cc:

Patricia Glauberman  
Cecilia Senecal

Exhibit A

Hughes Electronics Corporation Response to FCC Initial Request for Information dated February 4, 2002

Log of Confidential Documents Provided to FCC on April 5, 2002

Production Number	Document Source	Business Unit Source	Description	Request No.
FCC2A 000000845 - FCC2A	BOWEN, H	HNS	ARTICLE ON SATELLITE COMPETITION	XIII.D
FCC2A 000000850 - FCC2A	BOWEN, H	HNS	TWO WAY SATELLITE DELIVERED INTERNET	XIII.D
FCC2A 000000853 - FCC2A	BOWEN, H	HNS	DBS PLAYS HARBALL/CAN SATELLITE GO HEAD-TO-HEAD WITH CABLE?	XIII.D
000000855				
FCC2A 000000856 - FCC2A	BOWEN, H	HNS	[UNTITLED]	XIII.D
FCC2A 000000858 - FCC2A	BOWEN, H	HNS	BULLISH ON BROADBAND-AN INVESTOR'S GUIDE TO COMPETITIVE SERVICE PROVIDERS	XV.A
000000913				
FCC2A 000000914 - FCC2A	BOWEN, H	HNS	MUSIC AND MESSAGING SERVICES-FOR YOUR BUSINESS FROM DIRECWAY	XV.A
000000918				
FCC2A 000000919 - FCC2A	BOWEN, H	HNS	PRACTICAL APPLICATIONS OF MUSIC IN SERVICE SETTINGS	XV.A
FCC2A 000000935 - FCC2A	BOWEN, H	HNS	PROOF YOU CAN-GET FASTER TURNOVER-AND-HAPPIER CUSTOMERS-BACKGROUND MUSIC AS IT AFFECTS RESTAURANT PATRONS	XV.A
000000937				
FCC2A 000000938 - FCC2A	BOWEN, H	HNS	IT MAKES SENSE TO-SELECT THE PROPER MUSIC	XV.A
FCC2A 000000943 - FCC2A	BOWEN, H	HNS	BUSINESS SOLUTIONS	XV.A
FCC2A 000000944 - FCC2A	BOWEN, H	HNS	WHY ENTERPRISES CHOOSE CISCO	XV.A
FCC2A 000000945 - FCC2A	BOWEN, H	HNS	NETWORK CACHING TECHNOLOGIES	XV.A
FCC2A 000000946 - FCC2A	BOWEN, H	HNS	MEDIA METRIX RELEASES U.S. TOP 50 WEB AND DIGITAL MEDIA PROPERTIES -FOR APRIL 2000	XV.A
000000949				
FCC2A 000000950 - FCC2A	BOWEN, H	HNS	VALUE PROPOSITION	XV.A
FCC2A 000000951 - FCC2A	BOWEN, H	HNS	2000 U.S. MEDIUM BUSINESS NETWORKING (LAN AND WAN)	XV.A
FCC2A 000000953 - FCC2A	BOWEN, H	HNS	TABLE OF CONTENTS	XV.A
FCC2A 000000973 - FCC2A	BOWEN, H	HNS	U.S. INTERNET CONTENT DELIVERY MARKETS	XV.A
FCC2A 000000977 - FCC2A	BOWEN, H	HNS	PLANNING AND BUILDING-A DATA CENTER-MEETING THE E-BUSINESS CHALLENGE	XV.A
000000992				
FCC2A 000000993 - FCC2A	BOWEN, H	HNS	HOME -IS WHERE THE -NETWORK IS	XV.A
FCC2A 000001002 - FCC2A	BOWEN, H	HNS	FREE HOME NETWORKING DETAILED IN UNCOMMON BRIEFING PAPER	
000001002			BY EN -U.S. HOME CONTENT PROVIDER APPROACHES NEW MARKET	
			BROADBAND PROVIDERS TO OFFER FREE -HOME NETWORKS	
			CONSUMER MARKET CONTRIBUTING TO -GROWTH OF A HOME	

Production Number	Document Source	Business Unit Source	Description	Request No.
FCC2A 000001036 - FCC2A	BOWEN, H	HNS	BRINGING BROADBAND TO RETAIL	XV.A
FCC2A 000001038 - FCC2A	BOWEN, H	HNS	DBS GAINS ON CABLE	XV.A
FCC2A 000001041 - FCC2A 000001042	BOWEN, H	HNS	MIPS/TECHNOLOGIES/ MIPS TECHNOLOGIES AND HUGHES NETWORK SYSTEMS TEAM TO DELIVER NEXT-GENERATION DIRECTV SET-TOP BOX SYSTEMS; HUGHES STANDARDIZE	XV.A
FCC2A 000001043 - FCC2A	BOWEN, H	HNS	ABOUT US INDUSTRY	XV.A
FCC2A 000001046 - FCC2A	BOWEN, H	HNS	THE MULTICHANNEL CONTENT DELIVERY OPPORTUNITY	XV.A
FCC2A 000001051 - FCC2A	BOWEN, H	HNS	[UNTITLED]	XV.A
FCC2A 000001052 - FCC2A	BOWEN, H	HNS	RESEARCH STUDIES	XV.A
FCC2A 000001054 - FCC2A 000001055	BOWEN, H	HNS	CONSUMER BROADBAND SATELLITE SERVICES-A GLOBAL ANALYSIS OF KEY PLAYERS AND MARKET OPPORTUNITIES	XV.A
FCC2A 000001056 - FCC2A 000001059	BOWEN, H	HNS	BROADBAND SATELLITE MARKETS-A COMPREHENSIVE ANALYSIS OF TRENDS AND OPPORTUNITIES	XV.A
FCC2A 000001060 - FCC2A 000001063	BOWEN, H	HNS	ATTRACTING CONSUMERS TO BROADBAND SERVICES IN THE ABSENCE OF KILLER APPLICATIONS	XV.A
FCC2A 000001064 - FCC2A 000001066	BOWEN, H	HNS	SHARPENING THE EDGE-IMPROVING PERFORMANCE BEYOND THE SERVER	XV.A
FCC2A 000001067 - FCC2A 000001079	BOWEN, H	HNS	BULLETIN-IDC'S 2000 U.S. WEB SPENDING MODEL-FORECAST AND ANALYSIS BY VERTICAL INDUSTRY	XV.A
FCC2A 000001080 - FCC2A	BOWEN, H	HNS	SHAW'S RAISES STAKE IN SELF-CHECKOUT SYSTEMS	XV.A
FCC2A 000001081 - FCC2A 000001082	BOWEN, H	HNS	FOUND, INC. AND MERCHANTWIRED ANNOUNCE STRATEGIC PARTNERSHIP-AGREEMENT ALLOWS RETAILERS TO MOST EFFECTIVELY INTEGRATE THEIR MULTI-CHANNEL ASSETS	XV.A
FCC2A 000001083 - FCC2A 000001084	BOWEN, H	HNS	FINISH LINE SELECTS MERCHANTWIRED AS INFRASTRUCTURE PLATFORM AND LONG-TERM, SCALABLE TECHNOLOGY SOLUTION	XV.A
FCC2A 000001085 - FCC2A 000001086	BOWEN, H	HNS	SURVEY - REAL ESTATE AND THE NEW ECONOMY: DEATH OF SHOPPING MALL EXAGGERATED: RETAIL BY DAVID LAWSON: IT-HAS BEEN PREDICTED THAT INTERNET SHOPPING WILL HIT RETAIL PROPERTIES, BUT THEY MAY BE DEVELOPING A HEALTHY-RELATIONSHIP	XV.A
FCC2A 000001087 - FCC2A 000001091	HOVERSTEN, E	HNS	GM'S HUGHES ELECTRONICS TO MERGE WITH ECHOSTAR COMMUNICATIONS	XIV.D
FCC2A 000001092 - FCC2A 000001096	HOVERSTEN, E	HNS	GM'S HUGHES ELECTRONICS TO MERGE WITH ECHOSTAR COMMUNICATIONS	XIV.D
FCC2A 000001097 - FCC2A 000001100	BOWEN, H	HNS	MANAGEMENT UPDATE: NORTH AMERICAN ENTERPRISE PROPERTY AND CASINO	XIV.D

Production Number	Document Source	Business Unit Source	Description	Request No.
FCC2B 000001031 - FCC2B 000001054	BOWEN, H	HNS	THE VSAT REPORT-1999-VSAT INDUSTRY STATUS-REPORT TO CLIENTS-VERSION 1.2-VSAT INDUSTRY PROFILE	XIII.D
FCC2B 000001055 - FCC2B 000001061	BOWEN, H	HNS	THE VSAT REPORT-1999-VSAT INDUSTRY STATUS-REPORT TO CLIENTS-VERSION 1.2-EXECUTIVE SUMMARY-HUGHES NETWORK SYSTEMS	XIII.D
FCC2B 000001062 - FCC2B 000001072	BOWEN, H	HNS	THE VSAT REPORT-1999-VSAT INDUSTRY STATUS-REPORT TO CLIENTS-VERSION 1.2-EXECUTIVE SUMMARY-HUGHES NETWORK SYSTEMS-AMERICAN SERVICES	XIII.D
FCC2B 000001073 - FCC2B 000001095	BOWEN, H	HNS	THE VSAT REPORT-1999-VSAT INDUSTRY STATUS-REPORT TO CLIENTS-VERSION 1.2-EXECUTIVE SUMMARY-HUGHES NETWORK SYSTEMS-ISBN/PES PROFILE	XIII.D
FCC2B 000001096 - FCC2B 000001110	BOWEN, H	HNS	THE VSAT REPORT-1999-VSAT INDUSTRY STATUS-REPORT TO CLIENTS-VERSION 1.2-HUGHES NETWORK SYSTEMS-TES-QUANTUM PROFILE	XIII.D
FCC2B 000001111 - FCC2B 000001149	BOWEN, H	HNS	EMERGING OPPORTUNITIES IN SATELLITE COMMUNICATIONS-INTERNET VIA SATELLITE 2000-SECTION 2	XIII.D
FCC2B 000001150 - FCC2B 000001182	BOWEN, H	HNS	UGHERS COPORATE A MARKET AND TECHNOLOGY ASSESSMENT REPORT-SATELLITE	XIII.D
FCC2B 000001182 - FCC2B 000001240	BOWEN, H	HNS	MEDIACASTING-A NEW MODEL FOR THE INTERNET	XV.A
FCC2B 000001241 - FCC2B 000001253	BOWEN, H	HNS	MARKET ANALYSIS	XV.A
FCC2B 000001253 - FCC2B 000001270	BOWEN, H	HNS	MAKING BROADBAND MORE THEN A CONNECTION	XV.A
FCC2B 000001270 - FCC2B 000001286	BOWEN, H	HNS	CONSUMER ASPS: SEARCH FOR THE CUSTOMER	XV.A
FCC2B 000001286 - FCC2B 000001301	BOWEN, H	HNS	ENTERING THE ACCESS ERA-KEY BUSINESS PROBLEMS AND THE-PROPENSITY TO OUTSOURCE-APPLICATIONS IN THE U.S. MARKET	XV.A
FCC2B 000001302 - FCC2B 000001322	BOWEN, H	HNS	KNITTING TOGETHER MOBILE BROADBAND	XV.A
FCC2B 000001322 - FCC2B 000001325	BOWEN, H	HNS	GLOBAL WORKS CREATIVE BRIEF	XV.A
FCC2B 000001325 - FCC2B 000001333	BOWEN, H	HNS	BROADBAND WORLD-DSL STREAM-WHAT WENT WRONG?-A DSL US MARKET OVERVIEW-BRIEF	XV.A
FCC2B 000001334 - FCC2B 000001339	BOWEN, H	HNS	MANAGEMENT UPDATE: NORTH AMERICAN ENTERPRISE BROADBAND QUALITY OF-SERVICE -- DSL VS. CABLE	XV.A
FCC2B 000001340 - FCC2B 000001340	BOWEN, H	HNS	MARKET DRIVERS-4. COMPETITIVE LANDSCAPE IN BROADBAND ACCESS	XV.A
FCC2B 000001341 - FCC2B 000001341	BOWEN, H	HNS	CONSUMER PERCEPTIONS OF BROADBAND ACCESS	XV.A
FCC2B 000001342 - FCC2B 000001342	BOWEN, H	HNS	CABLE INDUSTRY MARKET ANALYSIS	XV.A
FCC2B 000001343 - FCC2B 000001343	BOWEN, H	HNS	CABLE INDUSTRY MARKET ANALYSIS	XV.A

Production Number	Document Source	Business Unit Source	Description	Request No.
FCC2B 000001363 - FCC2B	BOWEN, H	HNS	U.S. INTERNET CONTENT DELIVERY MARKETS	XV.A
FCC2B 000001367 - FCC2B	BOWEN, H	HNS	THE COSUMER MARKET OPPORTUNITY	XV.A
FCC2B 000001369 - FCC2B	BOWEN, H	HNS	SATELLITE COMMUNICATIONS-INDUSTRY UPDATE-THE TOP THREE -	XV.A
000001374			LEHMAN BROTHERS' SATELLITE DAILY	
FCC2B 000001375 - FCC2B	BOWEN, H	HNS	WORLDWIDE COMMERCIAL SATELLITE REVENUE	XV.A
FCC2B 000001377 - FCC2B	BOWEN, H	HNS	RESEARCH STUDIES	XV.A
FCC2B 000001384 - FCC2B	BOWEN, H	HNS	HUGHES BROADBAND ALLIANCE PROGRAM-BROCHURE COPY. DRAFT	XV.A
000001395			NUMBER 1.0 - 10-10-01	
FCC2B 000001396 - FCC2B	BOWEN, H	HNS	HUGHES TM-BROADBAND-ALLIANCE PROGRAM	XV.A
FCC2B 000001402 - FCC2B	BOWEN, H	HNS	SATELLITE STREAM-BROADBAND FROM ABOVE-AN UPDATE ON	XV.A
000001416			BROADBAND LOCAL ACCESS THROUGH SATELLITES-BRIEF	
FCC2B 000001417 - FCC2B	BOWEN, H	HNS	INTERNET INFRASTRUCTURE AND-SERVICES-BUSTING THE INTERNET'S	XV.A
000001553			BOTTLENECKS-A HOLISTIC APPROACH	
FCC2B 000001554 - FCC2B	BOWEN, H	HNS	CONTENT DELIVERY AND DISTRIBUTION MARKET	XV.A
FCC2B 000001566 - FCC2B	BOWEN, H	HNS	STORE ACCESS NETWORKS-TECHNOLOGY OVERVIEW-DSL/56K	XV.A
000001568			FRAME/FRACTIONAL T1	
FCC2B 000001569 - FCC2B	BOWEN, H	HNS	BEYOND THE INTERNET-THE EMERGENCE OF BROADBAND AND IP	XV.A
000001629			DATA SERVICES AS-THE PRIME MOVER OF A TECHNOLOGY-DRIVEN	
			ECONOMY	
FCC2B 000001630 - FCC2B	BOWEN, H	HNS	PUBLIC RELATIONS PLAN-FOR DIRECWAY TM SERVICES	XV.A
FCC2B 000001634 - FCC2B	BOWEN, H	HNS	WEAK SUB GROWTH AND REDUCED GUIDANCE-COME AS NO SURPRISE.	XV.A
000001641			FORTUNATELY, AMPLE VALUE EXISTS IN GMH	
FCC2B 000001642 - FCC2B	BOWEN, H	HNS	[UNTITLED]	XV.A
FCC2B 000001650 - FCC2B	BOWEN, H	HNS	DIRECWAY SERVICES - E MAIL	XV.A
FCC2B 000001651 - FCC2B	BOWEN, H	HNS	MARKET DEMAND DEFINITION	XV.A
FCC2B 000001652 - FCC2B	BOWEN, H	HNS	THE VSAT REPORT-1999-VSAT INDUSTRY STATUS-REPORT TO	XV.A
000001658			CLIENTS-VERSION 1.2-EXECUTIVE SUMMARY-HUGHES NETWORK	
			SYSTEMS	
FCC2B 000001659 - FCC2B	BOWEN, H	HNS	COMSYS RELEASES UPDATE ON-VSAT SATELLITE MARKET	XV.A
000001661			TRENDS-1999 INDUSTRY SALES INCREASE BY 30 PERCENT,-DRIVEN	
			BY EXPANSION OF INTERNET-BASED SERVICES	
FCC2B 000001662 - FCC2B	BOWEN, H	HNS	GROCERY STORES/SUPERMARKETS-IN THE UNITED STATES	XV.A
FCC2B 000001671 - FCC2B	BOWEN, H	HNS	ELECTRONIC CHECK CONVERSION	XV.A
000001695			MARKETING STRATEGY FOR RETAIL POINT-OF	
			SALE-ELECTRONIC CHECK CONVERSION	
FCC2B 000001696 - FCC2B	BOWEN, H	HNS	GROcery LINK FOR GROCERY STORES	XV.A

Production Number	Document Source	Business Unit Source	Description	Request No.
FCC2B 000001716 - FCC2B 000001735	BOWEN, H	HNS	WHITE PAPER--THE INS AND OUTS OF CONTENT DELIVERY NETWORKS	XV.A
FCC2B 000001736 - FCC2B 000001771 - FCC2B	BOWEN, H	HNS	THE FORRESTER REPORT-ON-LINE RETAIL DATA STRATEGIES	XV.A
FCC2B 000001803 - FCC2B	BOWEN, H	HNS	THE STATE OF RETAIL TECHNOLOGY 2001	XV.A
FCC2B 000001847 - FCC2B	BOWEN, H	HNS	THE STATE OF RETAIL TECHNOLOGY 2000	XV.A
FCC2B 000001879 - FCC2B	BOWEN, H	HNS	UGHER COPORATE	XV.A
FCC2B 000001896 - FCC2B	BOWEN, H	HNS	NORTH AMERICAN DIVISION-NETWORK SERVICES-OVERVIEW	XV.A
FCC2B 000001924 - FCC2B	BOWEN, H	HNS	INTRODUCING-HNS PROFESSIONAL SERVICES	XV.A
FCC2B 000001942 - FCC2B	HOVERSTEN, H	HNS	SALES AND MARKETING-MEETING	XV.A
FCC2B 000001960 - FCC2B	BOWEN, H	HNS	TES QUANTUM TM-1998 R AND D (JANUARY 98)	XV.B
FCC2C 000001733 - FCC2C	BOWEN, H	HNS	INTERACTIVE BROADBAND SERVICES-VIA SPACEWAY	XV.A
FCC2C 000001735 - FCC2C	BOWEN, H	HNS	UCENTRIC SYSTEMS FACT SHEET	XIII.D
FCC2C 000001742 - FCC2C	BOWEN, H	HNS	UCENTRIC LEADS AMONG THE COMPETITION	XIII.D
FCC2C 000001746 - FCC2C	BOWEN, H	HNS	UCENTRIC QUALITATIVE AND QUANTITATIVE RESEARCH	XIII.D
FCC2C 000001756 - FCC2C	BOWEN, H	HNS	TELEWORKER BUSINESS CASE:	XIII.D
FCC2C 000001757 - FCC2C	BOWEN, H	HNS	MARKET INTELLIGENCE	XIII.D
FCC2C 000001758 - FCC2C	BOWEN, H	HNS	[UNTITLED]	XIII.D
FCC2C 000001759 - FCC2C	BOWEN, H	HNS	MARKET INTELLIGENCE	XIII.D
FCC2C 000001760 - FCC2C 000001769	BOWEN, H	HNS	MARKET INTELLIGENCE	XIII.D
FCC2C 000001770 - FCC2C	BOWEN, H	HNS	STRATEGIC MARKETING-MISSION: CREATE SUBSTANTIAL REVENUE OPPORTUNITIES THROUGH NEW AND INNOVATIVE BUSINESS INITIATIVES.	XIII.D
FCC2C 000001772 - FCC2C	BOWEN, H	HNS	[UNTITLED]	XIII.D
FCC2C 000001801 - FCC2C	BOWEN, H	HNS	TEAM MEMBERS	XIII.D
FCC2C 000001826 - FCC2C	BOWEN, H	HNS	PROJECT ADDRESS-COMPETITIVE ANALYSIS	XIII.D
FCC2C 000001832 - FCC2C 000001846	BOWEN, H	HNS	RESTAURANT STRATEGY: PHASE TWO	XIII.D
FCC2C 000001847 - FCC2C	BOWEN, H	HNS	A COMPETITIVE ANALYSIS DIFFERENTIATING-HUGHES NETWORK SYSTEMS RTS FROM-MERCHANT WIRED-DRAFT	XIII.D
FCC2C 000001892 - FCC2C	BOWEN, H	HNS	ENTERPRISE DIVISION-STRATEGIC MARKETING-MAY 31, 2000	XIII.D
FCC2C 000001893 - FCC2C 000001893	BOWEN, H	HNS	A LOOK AT SHARE OF MARKET	XIII.D
FCC2C 000001894 - FCC2C	BOWEN, H	HNS	US POSTAL SERVICE CONTRACT-VSAT SALE ... OR COMMON STOCK PROMOTION?	XIII.D
FCC2C 000001913 - FCC2C	BOWEN, H	HNS	CREATING NETWORK SALES OPPORTUNITIES	XIII.D
FCC2C 000001914 - FCC2C	BOWEN, H	HNS	OPENABLE SUB-MARKET OPPORTUNITY AND BUSINESS CASE	XIII.D

Production Number	Document Source	Business Unit Source	Description	Request No.
FCC2C 000002142 - FCC2C 000002188	BOWEN, H	HNS	HUGHES NETWORK SYSTEMS-CORPORATE OVERVIEW A LEADER IN BROABAND	XIII.D
FCC2C 000002189 - FCC2C 000002244	BOWEN, H	HNS	VSAT BRIEFING FOR JIFFY LUBE	XIII.D
FCC2C 000002244 - FCC2C 000002286	BOWEN, H	HNS	COMPETING AGAINST GILAT	XIII.D
FCC2C 000002286 - FCC2C 000002332	BOWEN, H	HNS	HNS VALUE PROPOSITION-AKA-SILVER BULLETS AND-WEAPONS OF WAR	XIII.D
FCC2C 000002333 - FCC2C 000002347	BOWEN, H	HNS	DIRECWAY TELEWORKER-PACKAGE	XIII.D
FCC2C 000002347 - FCC2C 000002376	BOWEN, H	HNS	TELEWORKER COMPETITIVE ANALYSIS	XIII.D
FCC2C 000002376 - FCC2C 000002392	BOWEN, H	HNS	TELEWORKER BUISNESS CASE:	XIII.D
FCC2C 000002392 - FCC2C 000002451	BOWEN, H	HNS	HUGHES NETWORK SYSTEMS-MARKETING PLAN-CONTENT DELIVERY FOR THE SOHO MARKET	XV.A
FCC2C 000002451 - FCC2C 000002452	BOWEN, H	HNS	MUSIC AND MESSAGING-SOLUTION FOR YOUR BUSINESS	XV.A
FCC2C 000002452 - FCC2C 000002483	BOWEN, H	HNS	DIRECWAY-WHERE DOES IT FIT IN?	XV.A
FCC2C 000002483 - FCC2C 000002511	BOWEN, H	HNS	VERTICAL MARKET BUY DRIVERS	XV.A
FCC2C 000002511 - FCC2C 000002520	BOWEN, H	HNS	DIRECWAY MUSIC SERVICES	XV.A
FCC2C 000002520 - FCC2C 000002536	BOWEN, H	HNS	DIRECWAY MUSIC DEDICATED HUB	XV.A
FCC2C 000002536 - FCC2C 000002537	BOWEN, H	HNS	DIRECWAY MUSIC SALES GUIDE	XV.A
FCC2C 000002537 - FCC2C 000002543	BOWEN, H	HNS	MUSIC MESSAGING-ADVERTISING DESCRIPTION	XV.A
FCC2C 000002543 - FCC2C 000002545	BOWEN, H	HNS	COMPETITION	XV.A
FCC2C 000002545 - FCC2C 000002568	BOWEN, H	HNS	VERTICAL MARKET BUY DRIVERES	XV.A
FCC2C 000002568 - FCC2C 000002572	BOWEN, H	HNS	DMX MUSIC/AEI MUSIC	XV.A
FCC2C 000002572 - FCC2C 000002574	BOWEN, H	HNS	DMX/AEI MUSIC-NATIONAL ACCOUNT LIST	XV.A
FCC2C 000002574 - FCC2C 000002575	BOWEN, H	HNS	DRAFT-BACCHUS-A SOLUTION FOR LARGE AND MED ENTERPRISE TO SOLVE WAN CONGESTION PROBLEMS	XV.A
FCC2C 000002575 - FCC2C 000002604	BOWEN, H	HNS	BACCHUS-BUSINESS PLAN	XV.A
FCC2C 000002604 - FCC2C 000002605	BOWEN, H	HNS	ESPD - STRATEGIC MARKETING	XV.A
FCC2C 000002605 - FCC2C 000002626	BOWEN, H	HNS	DIRECWAY-ENHANCING AND IMPROVING VSAT SERVICES-FOR LOTUS NOTES AND THE INTERNET	XV.A
FCC2C 000002626 - FCC2C 000002633	BOWEN, H	HNS	HNS STRATEGIC DIALOG-SESSION I	XV.A
FCC2C 000002633 - FCC2C 000002652	BOWEN, H	HNS	BACCHUS-CACHING AND CONTENT DELIVERY SERVICE	XV.A
FCC2C 000002652 - FCC2C 000002653	BOWEN, H	HNS	[UNTITLED]	XV.A
FCC2C 000002653 - FCC2C 000002696	BOWEN, H	HNS	BACCHUS: SERVICE DEFINITION	XV.A
FCC2C 000002696 - FCC2C 000002704	BOWEN, H	HNS	BACCHUS: SERVICE DEFINITION	XV.A
FCC2C 000002704 - FCC2C 000002706	BOWEN, H	HNS	BACCHUS: CACHING AND CONTENT DELIVERY SERVICE	XV.A
FCC2C 000002706 - FCC2C 000002708	BOWEN, H	HNS	BACCHUS: CACHING AND CONTENT DELIVERY SERVICE	XV.A
FCC2C 000002708 - FCC2C 000002710	BOWEN, H	HNS	BACCHUS: CACHING AND CONTENT DELIVERY SERVICE	XV.A
FCC2C 000002710 - FCC2C 000002712	BOWEN, H	HNS	BACCHUS: CACHING AND CONTENT DELIVERY SERVICE	XV.A
FCC2C 000002712 - FCC2C 000002714	BOWEN, H	HNS	BACCHUS: CACHING AND CONTENT DELIVERY SERVICE	XV.A
FCC2C 000002714 - FCC2C 000002716	BOWEN, H	HNS	BACCHUS: CACHING AND CONTENT DELIVERY SERVICE	XV.A
FCC2C 000002716 - FCC2C 000002718	BOWEN, H	HNS	BACCHUS: CACHING AND CONTENT DELIVERY SERVICE	XV.A
FCC2C 000002718 - FCC2C 000002720	BOWEN, H	HNS	BACCHUS: CACHING AND CONTENT DELIVERY SERVICE	XV.A
FCC2C 000002720 - FCC2C 000002722	BOWEN, H	HNS	BACCHUS: CACHING AND CONTENT DELIVERY SERVICE	XV.A



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FCC2C 000002777 - FCC2C 000002785	BOWEN, H	HNS	BACCHUS	XV.A
FCC2C 000002785 - FCC2C 000002808	BOWEN, H	HNS	BACCHUS-BUSINESS PLAN	XV.A
FCC2C 000002808 - FCC2C 000002836	BOWEN, H	HNS	BACCHUS-BUSINESS PLAN-PROPRIETARY AND CONFIDENTIAL	XV.A
FCC2C 000002836 - FCC2C 000002870	BOWEN, H	HNS	BACCHUS-BUSINESS PLAN-PROPRIETARY AND CONFIDENTIAL-DRAFT	XV.A
FCC2C 000002871 - FCC2C 000002913	BOWEN, H	HNS	BACCHUS-BUSINESS PLAN-PROPRIETARY AND CONFIDENTIAL-DRAFT	XV.A
FCC2C 000002914 - FCC2C 000002964	BOWEN, H	HNS	BACCHUS-BUSINESS PLAN-PROPRIETARY AND CONFIDENTIAL DRAFT	XV.A
FCC2C 000002965 - FCC2C 000003013	BOWEN, H	HNS	BACCHUS-BUSINESS PLAN-PROPRIETARY AND CONFIDENTIAL-DRAFT	XV.A
FCC2C 000003014 - FCC2C 000003025	BOWEN, H	HNS	DRIVERS FOR HOME NETWORKING	XV.A
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FCC2C 000003148 - FCC2C 000003151	BOWEN, H	HNS	MARKET PENETRATION	XV.A
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FCC2C 000003173 - FCC2C 000003184	BOWEN, H	HNS	OPPORTUNITIES IN THE HOME-NETWORKING	XV.A
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FCC2C 000003375 - FCC2C	BOWEN, H	HNS	STRATEGIC MARKETING: RESTAURANT EVALUATION	XV.A
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FCC2C 000003438 - FCC2C	BOWEN, H	HNS	STRATEGIC MARKETING: RESTAURANT EVALUATION	XV.A
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FCC2C 000004494 - FCC2C	BOWEN, H	HNS	CHEVRON TRIP NOTES	XV.A
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FCC2C 000005581 - FCC2C	BOWEN, H	HNS	ROCKETSHIP	XV.A
FCC2C 000005586 - FCC2C	BOWEN, H	HNS	STATUS OF ROCKETSHIP	XV.A
FCC2C 000005590 - FCC2C	BOWEN, H	HNS	ENTERPRISE DIVISION-DIRECWAY TM SERVICE	XV.A
000005601			APPLICATIONS-SECOURIER	
FCC2C 000005602 - FCC2C	BOWEN, H	HNS	ENTERPRISE DIVISION-DIRECWAY TM SERVICE	XV.A
000005613			APPLICATIONS-SECOURIER	
FCC2C 000005614 - FCC2C	BOWEN, H	HNS	STRATEGIC MARKETING STATUS 5/22/2000	XV.A
FCC2C 000005615 - FCC2C	BOWEN, H	HNS	STRATEGIC MARKETING GOALS	XV.A
FCC2C 000005616 - FCC2C	BOWEN, H	HNS	EMAIL	XV.A
FCC2C 000005621 - FCC2C	BOWEN, H	HNS	MUSIC SERVICE	XV.A
FCC2C 000005629 - FCC2C	BOWEN, H	HNS	LA RESTAURANT PROJECT (PHASE IIA)-RESOURCES	XV.A
FCC2C 000005637 - FCC2C	BOWEN, H	HNS	MARKET INTELLIGENCE-PRIORITIES FOR APRIL-MAY 2001	XV.A
FCC2C 000005641 - FCC2C	BOWEN, H	HNS	HNS RESTAURANT INITIATIVE	XV.A
FCC2C 000005652 - FCC2C	BOWEN, H	HNS	DIRECWAY TM INITIAL SERVICES MARKET REVIEW	XV.A
FCC2C 000005688 - FCC2C	BOWEN, H	HNS	DIRECWAY SERVICES - ROCKETSHIP	XV.A
FCC2C 000005700 - FCC2C	BOWEN, H	HNS	DIRECWAY ENTERPRISE SERVICES-ROCKETSHIP-GLOBAL DIGITAL	XV.A
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FCC2C 000005820 - FCC2C	BOWEN, H	HNS	DIGITAL TELEVISION-ITV PLATFORMS-BALANCING CAPABILITY WITH	XV.A
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FCC2C 000005852 - FCC2C	BOWEN, H	HNS	MALL STRATEGY	XV.A
FCC2C 000005858 - FCC2C	BOWEN, H	HNS	MISCELLANEOUS RTS (MALL) INFO	XV.A
FCC2C 000005860 - FCC2C	BOWEN, H	HNS	GROCERY STORES/SUPERMARKETS-IN THE UNITED STATES	XV.A
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FCC2C 000005877 - FCC2C	BOWEN, H	HNS	[UNTITLED]	XV.A
FCC2C 000005878 - FCC2C	BOWEN, H	HNS	DEMAND	XV.A
FCC2C 000005886 - FCC2C	BOWEN, H	HNS	BRAND POSITIONING AND-DEVELOPMENT PROPOSAL	XV.A
FCC2C 000005914 - FCC2C	BOWEN, H	HNS	QUICK SUMMARY	XV.A
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FCC2C 000005961 - FCC2C	BOWEN, H	HNS	TELEVISION AND THE INTERNET	

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FCC2C 000006038 - FCC2C	BOWEN, H	HNS	A COMPETITIVE ANALYSIS	XV.A
FCC2C 000006053 - FCC2C	BOWEN, H	HNS	HUGHES NETWORK SYSTEMS-CORPORATE OVERVIEW A LEADER IN	XV.A
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FCC2C 000006100 - FCC2C	BOWEN, H	HNS	DIRECWAY-MANAGED ENTERPRISE CDN-VIA SATELLITE	XV.A
FCC2C 000006108 - FCC2C	BOWEN, H	HNS	HIGH SPEED NETWORKING VIA SATELLITE	XV.A
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000006170			PIZZA-BROADBAND NETWORKING-VIA SATELLITE	
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FCC2C 000006209 - FCC2C	BOWEN, H	HNS	NORTH AMERICAN DIVISION-CUSTOMER SERVICES-SALES AND	XV.A
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FCC2C 000006276 - FCC2C	BOWEN, H	HNS	DIRECWAY SERVICES UPDATE	XV.A
FCC2C 000006307 - FCC2C	BOWEN, H	HNS	MID YEAR SALES AND MARKETING-MEETING	XV.A
FCC2C 000006327 - FCC2C	BOWEN, H	HNS	HNS VALUE PROPOSITION-AKA-SILVER BULLETS AND-WEAPONS OF	XV.A
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FCC2C 000006374 - FCC2C	HOVERSTEN,	HNS	NORTH AMERICAN DIVISION-TACTICAL PLAN	XV.B
FCC2C 000006399 - FCC2C	HOVERSTEN,	HNS	STRATEGY	XV.B
FCC2C 000006427 - FCC2C	HOVERSTEN,	HNS	ESTIL HOVERSTEN	XV.B
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FCC2C 000006476 - FCC2C	HOVERSTEN,	HNS	HNS-ENTERPRISE DIVISION-12.5.99	XV.B
FCC2C 000006486 - FCC2C	HOVERSTEN,	HNS	TACTICAL PLAN	XV.B

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**Hughes Electronics Corporation Response to  
Initial Request for Information dated February 4, 2002**

ation #s: FCC2A0000000845 – FCC2A0000000857

Re:

Holly Bowen  
Hughes Network Systems

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Patrick Donovan <pdonovan@ucentric.com> on 06/11/2001 10:28:00 AM

C. Donovan/HNS@HNS, Holly Bowen/HNS@HNS, Rahul Savoor/HNS@HNS  
'D. Hwang (E-mail)' <dhwang@ucentric.com>  
on: Article on satellite competition

For the multiple emails, but I came across another interesting article.  
Here's this excerpt regarding the ComboBox by Bell Canada

It has already been grasped by Bell Canada Enterprises (BCE), Owner  
of the Bell ExpressVu DBS service and Bell Sympatico's high speed DSL  
form. BCE recently announced that it was integrating the two in a single  
top "ComboBox." It's being built by Echostar Communications, which is  
already Bell ExpressVu's prime receiver supplier.

Integrating its satellite and landline networks, BCE will enjoy the very  
advantages outlined above, says Tom Hope, the CTO at BCE subsidiary Bell  
Canada. But that's not all: thanks to the ComboBox's planned 40 Gb hard  
drive already found in the Echostar PRO 501 set-top box--this carrier  
also figured out "how to provide Video on Demand," he says.

Everybody has been thinking about network storage and then immediate delivery  
through "transport network," Hope explains. "Well, the ComboBox allows you to  
upload the top six movies [directly to the box via satellite], and they sit  
on [in the set-top's hard drive] encrypted and secure. Then, if the user  
wants to watch them, they play immediately and with full VCR functionality."

A combined Fusion-Ucentric set top could do the same thing)

Article: Internet Business: The Good, The Bad And The Fuss Over Fiber

Article Business Information: Friday, June 8, 2001

10/2001 (VIA Satellite/Phillips Publishing via COMTEX) -- When it comes  
satellites and the Internet, the news is both bad and good. It's bad for  
those offering interconnecting terrestrial Internet backbones, or other  
Internet point applications. But it's good for those carriers offering  
Internet multipoint satellite Internet delivery.

But in another way, "satellite is not good for point-to-point, unless it's  
a one-to-one option available," says Stephen Blum, president of Tellus Venture  
Associates. However, "For point-to-multipoint it's a killer. You can't beat  
satellite."

How can two such contradictory views apply to the same telecom sector? Easy.  
Internet multipoint services exploit satellite technology's unique edge: they  
can receive hemispheres from a single point in space, and use that position  
to serve billions.

While point-to-point satellite links merely mimic the capabilities of  
terrestrial fiber optic networks. Given the explosive growth of those  
networks--especially transoceanic--satellite point-to-point Internet links  
are finding themselves increasingly under siege.

Article: Multipoint: Looks Like Good News

we speak of point-to-multipoint satellite Internet service, we're really talking about those carriers who link customers directly to the Web. We're talking about satellite ISPs operated by companies such as Hughes Network Systems (HNS) and Gilat.

At the least, both these companies have been busy staking claims to space.

Earlier, in January 2001, Hughes announced its "DirecTV Broadband Powered by DirecPC" consumer product. Aimed at the company's existing nine million DBS subscribers, "Powered by DirecPC" provides two-way high-speed Internet access to all its subscribers with a downstream speed of 400 kbps and a return path of 128 kbps. To sweeten the deal, Hughes is also packaging over 225 DirecTV channels, breaking it all through a single "DirecDuo" dish at each receive site.

It is a key element in the Hughes strategy to bring 'infotainment' to the home," says Paul Gaske, HNS' executive vice president and general manager. When the new service was announced in Las Vegas, "With the addition of DirecPC to our other 'Powered by' partners [such as America Online, Comcast, and Juno], DirecPC will now be marketed to a combined base of over 10 million existing subscribers of television and Internet services in the United States."

Meanwhile, Gilat's Starband Communications passed the 25,000 subscriber mark at the end of this year. Given the service was launched a few short months ago, it's quite an accomplishment, and one that Starband CEO and co-chairman exults about.

Just over a year, Starband has gone from a business plan to over 25,000 subscribers, national distribution channels, and an infrastructure to support demand from consumers still waiting for high-speed Internet access," he says. "We will continue to execute against a key company objective: to bring high-speed Internet access to virtually everyone, everywhere, in the United States."

Is the effort justified? If satellite ISPs perform as well as DBS has to date, the answer is yes.

According to Blum, U.S. DBS penetration will hit 18 million subs this year and 28 million by 2010. That's one out of every three households. Giving TV from space, on a platform that--as Hughes has correctly deduced--can carry high-speed Internet as well.

Things get better--and how often can one say that these days?--is that DBS subscribers not only earn more money than the general population--a median income of \$48,200 versus \$38,865--but are also the kind of consumers about whom advertisers fantasize, according to Michael Goodman, a senior analyst at the Yankee Group.

DBS subscribers are even more attractive, Goodman adds. They've got a median income of \$56,800, and, on median average, are 41.4 years old.

Bottom line: The News Looks Bad

At first glance one would expect point-to-point satellite Internet to be as easy as point-to-multipoint. After all, "today the number one opportunity in the Internet backbone connectivity," says Gina Dolan, Intelsat's senior director manager for Internet.

What's the problem? Two words: terrestrial networks. Armed with ever-increasing pots of fiber optic-based bandwidth, the world's terrestrial

ers are in a position to cut prices, and make satellite point-to-point's revenue dim indeed.

At the moment, "fiber is reducing opportunities in the core business," Bert Liebowitz, NetSat Express' former president and COO, and now a consultant.

Caressi agrees. A research manager for Frost & Sullivan's Communications Services Group, Caressi recently told delegates to the CITE 2001 conference that "where satellite has been used to trunk internet traffic in metropolitan regions -- particularly in China a few years ago -- it's already been replaced by fiber."

As matters worsen, it's not just inter-city fiber capacity that's growing. Also international capacity, as submarine cables reach across the oceans, a fiber optic web strangling satellite traffic at the neck.

What of this growth? Well, within the next two years, there will be about 3 Gbps worth of terrestrial bandwidth available in the South Asian region, says Stephan Beckert, TeleGeography's director of traffic research. While about 7,000 Gbps of fiber will connect the United States to Europe, 1,500 Gbps will run between the United States and Asia.

Put things another way, just one of these new cables can carry more traffic than the world's entire satellite fleet combined. Small wonder that those in the industry worried about satellite point-to-point's viability; especially now that's happened to international point-to-point telephone traffic by satellite. Once the workhorse of this sector, traffic has declined so much that there are no longer any such links between the United States and Germany, Beckert, nor the United States and Japan. His conclusion? "The point-to-point era for satellite communications has come to an end."

All this is going on, terrestrial wireless carriers are also hemming in satellite companies, says Jean-Francois Gambart, Alcatel's vice president of strategy and business development.

Terrestrial carriers are allowed to continue grabbing spectrum-- notably 30 wireless and other broadband applications--then Gambart fears the satellite industry's future will be put "at risk."

#### Point-to-Multipoint Has Its Internet Challenges Too

Before you ditch all your Internet point-to-point traffic in favor of point-to-multipoint, you should know this latter application has its problems regarding capacity.

To illustrate this point, Blum points to Starband. Based on his data, Starband should accommodate at least 20,000 subscribers per transponder to make a profit. Right now Blum estimates the company's got about 8,500 on each.

Even so, these are early days for Starband; given time, it will likely hit break-even. But what about broadband? Well, that's where things start to fall apart, Blum says.

Imagine, for example, say that Starband users start to download 220 kbps video streams, the kind already being delivered by PBS. According to Blum, a single transponder can only support about 200 such users. Even if they turn off the video and switch to 16 kbps streamed mono audio, the most each transponder can support is 3,000 users.

Result? If it proves popular--and it already has--broadband Internet service could hit satellite ISPs with the double-whammy of lower user-capacity

higher per-user cost. For a nascent industry, this is just plain bad news.

#### Can the Industry Do?

In the historical decline of point-to-point satellite traffic, and the many problems looming for point-to-multipoint, satellite carriers are faced with some hard choices with respect to the Internet. If they commit themselves too much to this medium, they leave themselves open to the increasing strength of terrestrial competition. But if satellite carriers don't fence, they risk losing this battle before it even begins, by entering the field at the outset.

What's the answer? If you can't beat 'em, buy 'em.

By tying terrestrial networks, satellite carriers can play both sides of the street. They can deploy satellites in emerging markets where nothing else exists. Then, as competing terrestrial networks begin to extend their tendrils into the market, satellite carriers can move their traffic onto their own fiber-optic networks. This allows them to compete head-to-head on cost and reliability, while freeing up their satellites to tackle new opportunities.

That's not all a combined approach offers. By using both satellite and terrestrial networks for Internet service, carriers can direct traffic based on which route makes the most sense. Are 500,000 users trying to simultaneously access the latest Victoria's Secret Webcast? Put it up on satellite. Is most of your traffic moving within certain localized areas? Save transport dollars: put it on fiber optic lines.

This has already been grasped by Bell Canada Enterprises (BCE). Owner of Canada's Bell ExpressVu DBS service and Bell Sympatico's high speed DSL service, BCE recently announced that it was integrating the two in a single top-level "ComboBox." It's being built by Echostar Communications, which is today Bell ExpressVu's prime receiver supplier.

By integrating its satellite and landline networks, BCE will enjoy the very benefits outlined above, says Tom Hope, the CTO at BCE subsidiary Bell Canada. But that's not all: thanks to the ComboBox's planned 40 Gb hard drive already found in the Echostar PRO 501 set-top box--this carrier also figured out "how to provide Video on Demand," he says.

By now, you've been thinking about network storage and then immediate delivery through a transport network," Hope explains. "Well, the ComboBox allows you to load the top six movies [directly to the box via satellite], and they sit there [in the set-top's hard drive] encrypted and secure. Then, if the user wants to watch them, they play immediately and with full VCR functionality."

#### Customers Accept Integrated Solutions?

Mostly yes.

It's because people "don't care how you move their traffic," says Kay Blum, Echostar's vice president of voice data and Internet services. "They want a good connection to the Internet."

At the very simple fact, satellite industry experts are "predicting emergence on a service level, rather than on a technology level," says Blum. "You're going to see over time are hybrid networks that use terrestrial point-to-point, and an overlay of broadcast broadband coming in via satellite."

Blum agrees. In fact, he believes it's starting to happen right now. After "we've all heard announcements of Intelsat or Panamsat becoming a

communications solutions provider," Beckert says, "rather than a satellite company that only sells transponders."

#### Looking to the Future Successfully

By the approach being espoused here runs counter to satellite industry tradition. In fact, the last 50 years have seen people pitting satellites and landlines in a kind of transmission "Holy War," as if respect for one precluded respect for the other.

The satellite industry can no longer afford this kind of thinking if it's serious about the Internet as a long-term proposition. The development of terrestrial voice telecommunications is a warning: where satellites pioneered, terrestrial networks profit. The only way to win is to be in both.

Urging satellite carriers can ignore this advice. In doing so, however, they risk themselves more and more squeezed out of the best markets--the first world urban centers--and increasingly dependent on the worst: the rural third world.

Isn't a value judgement; it's just that the first world has more money to spend on telecommunications. Unfortunately, the third world doesn't; that's what satellite telephony has yet to live up to its potential.

Also why Iridium and Globalstar found themselves in such deep trouble. By the time they launched, terrestrial competitors had skimmed the rich cream of the cellular market. Granted, you still can't get cellular phone service at the North Pole or in the Australian Outback. But just how much money is made by supplying satellite services to these regions? Not much. Not enough to keep most for-profit businesses alive.

Even when for point-to-point and point-to-multipoint satellite Internet dens like, it's time to take a hard look at adding terrestrial networks. Relying on satellite alone just isn't enough.

Beckert is a contributing writer to Via Satellite.

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## Two Way Satellite Delivered Internet

Satellite delivered internet has been around for some time. [DirecPC](#) and other systems have utilized the broadband capability of geostationary satellites to deliver the high bandwidth data stream from Internet servers to the end user. The outgoing requests for WWW pages and files use a normal dial up ISP. The requested data is routed through the satellite to the end users satellite system and into their PC at rates of around 400 Kbps. This data rate may seem small for those who have the luxury of a good cable modem connection or DSL, but it is a welcome alternative for people in underserved communities. The one drawback is having to subscribe to an ISP to service the outgoing requests, thus having to pay an ISP as well as the satellite service provider. Another drawback is that the system ties up a phone line. This may seem trivial, but having to lease another phone line adds to the total system cost, as well as keeping a phone line in use while on the Internet.

Two systems are planning to launch satellite delivered internet that will use a satellite link to send requests to the internet, thus eliminating the need for a telephone line and a separate ISP. This will allow the forward and return paths for data to be completely serviced by satellite. These systems are

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## Wireless Communications

served by satellite. These systems are DirecPC (backed by Hughes Network Systems) and the Gilat-To-Home Internet Service (backed by VSAT operator Gilat, MSN and EchoStar). Both systems are targeting the last quarter of 2000 for system launch.

The DirecPC system will utilize the current PanAmSat Ku band satellite, but plans to use the new Spaceway satellite platform that is planned for 2003. The Spaceway satellite operates in the Ka band. DirecPC expects the forward or uplink data speed (into the Internet) to be between 128 Kbps and 256 Kbps. (It is unclear if many users will share this uplink data channel, or if users will be able to transmit data at 128 or 256 Kbps. I suspect that many users will share the uplink data channel.) Downlink or return data speeds (from the Internet) to burst to 400 Kbps for each user, just as the current DirecPC system operates today.

The Gilat-To-Home system will use an unnamed satellite that will be adjacent to satellites in the EchoStar fleet in order to use a single receive antenna to simultaneously receive the EchoStar TV product and the Gilat-To-Home product. The system boasts downlink speeds at 10 times normal modem speeds (which I interpret as between 400 to 500 Kbps), with burst speeds 'considerably higher'. I could not find any information on the uplink speeds expected for the Gilat-To-Home product.

In the past, private VSAT networks were an expensive proposition for remote businesses. I see great potential for utilizing these systems as a low cost solution for remote business offices, offering users high speed access to e-mail, internet and other high speed data services.

The one broadband satellite system that I have not mentioned is Teledesic. This system boasts a constellation of 288 satellites that will cover 95% of the earth's

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